Abstract

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Tittle: Golf swing in subjects with amputation of lower extremity

Objectives: The study aims at evaluation of the technique of golf swing used by patients with a different type and level of lower extremity amputation as compared to able-bodied golfers. Another objective is determination of the relation between individual phases of the golf swing and weight transfer, using different golf clubs, as compared to able-bodied golfers.

Method: By its topic the work is a pilot study. The research has been divided into three descriptive case studies. The experimental group included two amateur golfers and one professional golfer. The control group was represented by an able-bodied golfer. Evaluation of kinematic parameters (trajectory of shoulders, hips, knee joints) was based on the Qualysis Motion Capture System. Evaluation of dynamic parameters (weight transfer) in the course of golf swing was made using two dynamometric Kistler platforms.

Results: The measuring has demonstrated that in terms of both kinematics and dynamics, the mode of movement of a patient with a trans-tibial amputation during a golf swing corresponds to that of an able-bodied golfer. The same results were achieved by the patient also with the use of another type of golf club. A change, both in terms of kinematics and dynamics, was recorded in the golf swing in a patient with a trans-femoral amputation and a female patient with bilateral trans-femoral amputation. In both cases the activity of arms during the golf swing was higher. In both patients it has been confirmed that kinematic as well as dynamic parameters change with the increase of length of the golf club.

Keywords: golf swing, amputation of lower extremity, 3D kinematic analysis, force platform